



May 7, 2013

Mr. Andre Arnold
Project Director
Department of General Services
707 Third Street, Suite 3-305, MS 502
West Sacramento CA 95605
andre.arnold@dgs.ca.gov

Job number: 8410430 - 10

RE: Industrial Hygiene Report for Pipe Investigation Work conducted on Friday April 26-Saturday April 27, 2013

Dear Mr. Arnold,

GHD performed pipe investigation work in the Men's Restroom located at the Northwest corner of the 24th floor. All pipe investigation work was conducted above ceiling. No destructive means were needed for access above ceiling. During an investigation of the anticipated work area, conducted on Thursday April 18, 2013, the plumbing cavity (isolated with plastic sheeting) appeared to have water related damage behind one of the toilet fixtures. On Friday April 26, 2013, Pipe Investigation work was conducted in accordance with the procedures outlined in the *Industrial Hygiene Work Plan for Board of Equalization Building, 450 N Street, Sacramento CA, Pipe Corrosion Investigation Project*, dated April 26, 2013.

Allied Environmental set-up a two- chambered negative pressure containment. The work area above the ceiling was prepared with plastic sheeting beneath the work pipe investigation work area and the plumbing cavity was covered with an additional layer of plastic sheeting. After containment preparation work, workers of other trades were able to conduct the pipe investigation procedures of this project. Smoke testing was conducted prior to work procedures to verify negative pressure was achieved in the containment. A spore trap sample was collected during pipe investigation work procedures. At the end of the pipe investigation work, the negative air machines were left in the 'on' position to allow the air to 'scrub'. On Saturday April 27, 2013, final work air samples were collected. These samples were then taken to the accredited laboratory for same day analysis. All spore trap air results were unremarkable and showed no unusual levels. The containment was disassembled on Saturday April 27, 2013.

CLOSING

GHD performed these hazardous materials survey services in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances.

This report is intended as an informational resource for Department of General Services.

If you have any questions or concerns regarding this document please do not hesitate to call GHD at (916) 372-6606.



SIGNATURES & QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Report prepared for Department of General Services by:

A handwritten signature in blue ink that reads "Erica E. Sattar".

Erica Sattar, CSST CDPH
Industrial Hygiene Technician
Certified Site Surveillance Technician #08-4327
CDPH Lead Sampling Technician #20425

Report prepared and reviewed for Department of General Services by:

A handwritten signature in blue ink that reads "Chris Smith".

Chris Smith, CAC CDPH
Certified Asbestos Consultant #05-3823
CDPH Lead Inspector-Assessor/Project Designer #12430

Attachments:

GHD Field Reports

Analytical Laboratory Data



GHD Field Reports



FIELD REPORT

Date: 04.18.2013 Shift #: 1 Project Number: 8410430 Page 1 of 2

Project Name: Corroded Drain Line Investigation

Location: 450 N Street, Sacramento CA

GHD Inc. (GHD) Rep: Erica Sattar Signature: Erica Sattar

Note: Time/Work Description and/or Progress/Location/Crew Size/Concerns/Problems/Resolutions/Daily Summary

DAILY SUMMARY

Shift Start Time: 06:00pm Shift Stop Time: 8:45pm # Of Contractors On-Site: 4

	Area	Hour	Reading	Hour	Reading	Hour	Reading	Hour	Reading
Manometer Readings									
Manometer Readings									

SUMMARY OF EVENTS:

Allied performed the following:

Area	Tasks or Events	Completion	# workers
	unloaded equipment/materials for storage in Elect. Room on 24 th Floor.	100%	2
	Inserted planking above ceiling	100%	2

Number of Samples:	PCM	/	TEM	/	AA	/	PLM	/	Air-o-cell	Ø
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GHD performed the following:

visual inspection of above ceiling work area of men's 24th Floor restroom.



FIELD REPORT

Date: 04-26-2013 Shift #: 2 Project Number: 8410430 Page 1 of 3

Project Name: Corroded Drain Line Investigation

Location: 450 N Street, Sacramento CA

GHD Inc. (GHD) Rep: Erica Sattar

Signature: Erica Sattar

Note: Time/Work Description and/or Progress/Location/Crew Size/Concerns/Problems/Resolutions/Daily Summary

DAILY SUMMARY

Shift Start Time: 1830 Shift Stop Time: 0100 # Of Contractors On-Site: 6

	Area	Hour	Reading	Hour	Reading	Hour	Reading	Hour	Reading
Manometer Readings									
Manometer Readings									

SUMMARY OF EVENTS:

Allied performed the following:

Area	Tasks or Events	Completion	# workers
24th Fl men's Restroom	Containment set-up	100%	2
↓	Above ceiling - work area 'prep'	100%	2

Number of Samples:	PCM	Ø	TEM	Ø	AA	Ø	PLM	Ø	Air-o-cell	2
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GHD performed the following:

Work area inspection
Containment inspection
Work progress sample collection



FIELD REPORT

Date: 04-26-2013 Shift #: 2 Project Number: 8410430 Page 2 of 3

Project Name: Corroded Drain Line Investigation

Location: 450 N Street, Sacramento CA

GHD Inc. (GHD) Rep: Erica Sattar Signature: Erica Sattar

Note: Time/Work Description and/or Progress/Location/Crew Size/Concerns/Problems/Resolutions/Daily Summary

DAILY LOG:

Time	Area	Summary of Events
1830		On-site w/ Brice Mech, Allied Envir., Flowrite, testing Eng., & BOE. Brief safety meeting & plan for tonight's investigation procedures/order of events.
		Plan: construct containment, change fittings of pipe, execute camera work, collect pipe samples, let air scrub, collect samples tomorrow morning followed by disassembly of containment.
1900		Allied & Brice load materials/equipment up to 24 th floor. Containment size is discussed & agreed to by all parties involved in work procedures.
1930		Allied begins constructing containment. Penetrations at west wall (toilet seat cover dispenser & toilet seals are sealed w/ tape and/or plastic & tape).
2100		Allied secures flaps of containment, negative air (HEPA filtered) has been put into place. There is visible evidence containment is under negative pressure. Ex Air is being exhausted into ceiling vent at north portion of restroom ceiling - Area prepped OK to work.
2210		Brice Mech. enter containment in full suit (tyvek). GHD conducts smoke test to assure negative pressure. Negative pressure visible with smoke test & containment



FIELD REPORT

Date: 04.26.2013 Shift #: 2 Project Number: 8410430 Page 3 of 3

Project Name: Corroded Drain Line Investigation

Location: 450 N Street Sacramento CA

GHD Inc. (GHD) Rep: E. Sattar

Signature: E. Sattar

Note: Time/Work Description and/or Progress/Location/Crew Size/Concerns/Problems/Resolutions/Daily Summary

Time	Area	Summary of Events
2230		Walls are visibly being pulled in. Flowrite Plumbing enters containment, Brice exits Camera work now in progress. Brice dons Tyvek & decontaminates equipment utilizing HEPA vac. Allied places an addition air machine at restroom entrance for addition air scrubbing outside the work area.
2330		Camera work is complete - Flowrite decors appropriately.
2340		Testing Engineers performs pipe scan - Brice caps piping with all pipe investigation at this location -
2415		Testing Eng & Brice have donned Full suits and decont equipment. GHD collects post work area samples. (outside deum and at boiling exterior)
2430		24 th Floor women's restroom is inspected for pipe work scheduled next week. - No visible staining/ concerns in area.
2500		All work complete - All parties off-site - End of Shift.



FIELD REPORT

Date: 04-27-2013	Shift #: 3	Project Number: 8410430	Page 1 of 2
Project Name: Corroded Drain Line Investigation			
Location: 450 N Street Sacramento CA			
GHD Inc. (GHD) Rep: Erica Sattar		Signature: Erica Sattar	
Note: Time/Work Description and/or Progress/Location/Crew Size/Concerns/Problems/Resolutions/Daily Summary			

DAILY SUMMARY											
Shift Start Time: 0745		Shift Stop Time: 1200		# Of Contractors On-Site: 1							
	Area	Hour	Reading	Hour	Reading	Hour	Reading	Hour	Reading		
Manometer Readings											
Manometer Readings											
SUMMARY OF EVENTS:											
Allied performed the following:											
Area	Tasks or Events						Completion	# workers			
24th Floor Men's Restroom	Containment Disassembly						100%	1			
Number of Samples:		PCM	0	TEM	0	AA	0	PLM	0	Air-o-cell	4
GHD performed the following:											
Final work - disassembly inspection - passed visual area left in condition found collected air samples, delivered to lab for analysis											



Analytical Laboratory Data



Report for:

Ms. Erica Sattar
GHD Inc.
3831 North Freeway Blvd., Suite 220
Sacramento, CA 95834-1933

Regarding: Project: 8410430; Corroded Drain Line Invest.
EML ID: 1055837

Approved by:

Lab Manager
Malcolm Moody

REVISED REPORT

Dates of Analysis:
Spore trap analysis: 04-30-2013

Service SOPs: Spore trap analysis (1038 (previously I100000 and I100007))
AIHA-LAP, LLC accredited service, Lab ID #179768

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	042613-01: Decon Unit		042613-02: Exterior, North Entrance		042713-01: Exterior, South Entrance	
Comments (see below)	None		None		None	
Lab ID-Version‡:	4749600-2		4749601-2		4749602-2	
Analysis Date:	04/30/2013		04/30/2013		04/30/2013	
	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3
Alternaria					1	13
Ascospores			5	270	4	210
Basidiospores	1	53	10	530	5	270
Chaetomium						
Cladosporium			5	270	12	640
Curvularia						
Epicoccum						
Fusarium						
Myrothecium						
Nigrospora						
Other brown					1	13
Other colorless						
Penicillium/Aspergillus types†						
Pithomyces						
Rusts					1	13
Smuts, Periconia, Myxomycetes	1	13	4	53	2	27
Stachybotrys						
Stemphylium						
Torula						
Ulocladium						
Zygomycetes						
Background debris (1-4+)††	2+		1+		2+	
Hyphal fragments/m3	27		130		53	
Pollen/m3	13		40		80	
Skin cells (1-4+)	1+		< 1+		< 1+	
Sample volume (liters)	75		75		75	
§ TOTAL SPORES/m3		67		1,100		1,200

Comments:

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample.

† The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.

†† Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher than reported. It is important to account for sample volumes when evaluating dust levels.

The analytical sensitivity is the spores/m3 divided by the raw count. The limit of detection is the analytical sensitivity multiplied by the sample volume divided by 1000.

For more information regarding analytical sensitivity, please contact QA by calling the laboratory.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	042713-02: Mens NW RR Entrance		042713-03: Inside Containment		042713-04: Exterior, North Entrance	
Comments (see below)	None		None		None	
Lab ID-Version‡:	4749603-2		4749604-2		4749605-2	
Analysis Date:	04/30/2013		04/30/2013		04/30/2013	
	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3
Alternaria						
Ascospores					4	210
Basidiospores			1	53	8	430
Chaetomium						
Cladosporium	1	53				
Curvularia						
Epicoccum						
Fusarium						
Myrothecium						
Nigrospora						
Other brown						
Other colorless						
Penicillium/Aspergillus types†					24	1,300
Pithomyces						
Rusts						
Smuts, Periconia, Myxomycetes	1	13	4	53	1	13
Stachybotrys						
Stemphylium						
Torula					1	13
Ulocladium						
Zygomycetes						
Background debris (1-4+)††	2+		3+		2+	
Hyphal fragments/m3	13		13		27	
Pollen/m3	13		27		80	
Skin cells (1-4+)	1+		1+		1+	
Sample volume (liters)	75		75		75	
§ TOTAL SPORES/m3		67		110		1,900

Comments:

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample.

† The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.

†† Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher than reported. It is important to account for sample volumes when evaluating dust levels.

The analytical sensitivity is the spores/m3 divided by the raw count. The limit of detection is the analytical sensitivity multiplied by the sample volume divided by 1000.

For more information regarding analytical sensitivity, please contact QA by calling the laboratory.

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Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldRANGE™: Extended Outdoor Comparison**Outdoor Location: 042613-02, Exterior, North Entrance**

Fungi Identified	Outdoor data	Typical Outdoor Data for: April in California (n‡=16784)†						Typical Outdoor Data for: The entire year in California (n‡=188141)†					
		very low	low	med	high	very high	freq %	very low	low	med	high	very high	freq %
Generally able to grow indoors*													
Alternaria	-	13	13	27	60	93	55	13	13	27	67	110	54
Bipolaris/Drechslera group	-	7	13	13	27	40	9	7	13	13	27	40	12
Chaetomium	-	8	13	13	27	40	18	8	13	13	27	47	19
Cladosporium	270	110	160	430	1,100	1,900	96	110	210	630	1,700	2,800	97
Curvularia	-	7	8	13	13	27	2	7	13	13	27	53	6
Nigrospora	-	7	10	13	13	27	4	7	13	13	27	53	8
Other brown	-	13	13	13	40	53	33	13	13	13	40	53	34
Penicillium/Aspergillus types	-	53	53	160	430	690	79	53	100	210	590	1,000	85
Stachybotrys	-	7	13	13	33	67	5	7	13	13	33	67	4
Torula	-	11	13	13	40	67	14	8	13	13	40	67	12
Seldom found growing indoors**													
Ascospores	270	27	53	110	370	690	75	25	53	110	360	690	71
Basidiospores	530	53	80	270	960	2,000	93	53	80	270	1,000	2,400	93
Rusts	-	13	13	25	53	93	35	13	13	13	53	80	27
Smuts, Periconia, Myxomycetes	53	13	13	40	110	200	67	13	13	40	110	200	68
§ TOTAL SPORES/m3	1,100												

†The 'Typical Outdoor Data' represents the typical outdoor spore levels for the location and time frame indicated. The last column represents the frequency of occurrence. The very low, low, med, high, and very high values represent the 10, 20, 50, 80, and 90 percentile values of the spore type when it is detected. For example, if the frequency of occurrence is 63% and the low value is 53, it would mean that the given spore type is detected 63% of the time and, when detected, 20% of the time it is present in levels above the detection limit and below 53 spores/m3. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

*The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

**These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

‡n = number of samples used to calculate data.

Interpretation of the data contained in this report is left to the client or the persons who conducted the field work. This report is provided for informational and comparative purposes only and should not be relied upon for any other purpose. "Typical outdoor data" are based on the results of the analysis of samples delivered to and analyzed by EMLab P&K and assumptions regarding the origins of those samples. Sampling techniques, contaminants infecting samples, unrepresentative samples and other similar or dissimilar factors may affect these results. In addition, EMLab P&K may not have received and tested a representative number of samples for every region or time period. EMLab P&K hereby disclaims any liability for any and all direct, indirect, punitive, incidental, special or consequential damages arising out of the use or interpretation of the data contained in, or any actions taken or omitted in reliance upon, this report.

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldRANGE™: Extended Outdoor Comparison**Outdoor Location: 042713-01, Exterior, South Entrance**

Fungi Identified	Outdoor data	Typical Outdoor Data for: April in California (n‡=16784)†						Typical Outdoor Data for: The entire year in California (n‡=188141)†					
		very low	low	med	high	very high	freq %	very low	low	med	high	very high	freq %
Generally able to grow indoors*													
Alternaria	13	13	13	27	60	93	55	13	13	27	67	110	54
Bipolaris/Drechslera group	-	7	13	13	27	40	9	7	13	13	27	40	12
Chaetomium	-	8	13	13	27	40	18	8	13	13	27	47	19
Cladosporium	640	110	160	430	1,100	1,900	96	110	210	630	1,700	2,800	97
Curvularia	-	7	8	13	13	27	2	7	13	13	27	53	6
Nigrospora	-	7	10	13	13	27	4	7	13	13	27	53	8
Other brown	13	13	13	13	40	53	33	13	13	13	40	53	34
Penicillium/Aspergillus types	-	53	53	160	430	690	79	53	100	210	590	1,000	85
Stachybotrys	-	7	13	13	33	67	5	7	13	13	33	67	4
Torula	-	11	13	13	40	67	14	8	13	13	40	67	12
Seldom found growing indoors**													
Ascospores	210	27	53	110	370	690	75	25	53	110	360	690	71
Basidiospores	270	53	80	270	960	2,000	93	53	80	270	1,000	2,400	93
Rusts	13	13	13	25	53	93	35	13	13	13	53	80	27
Smuts, Periconia, Myxomycetes	27	13	13	40	110	200	67	13	13	40	110	200	68
§ TOTAL SPORES/m3	1,200												

†The 'Typical Outdoor Data' represents the typical outdoor spore levels for the location and time frame indicated. The last column represents the frequency of occurrence. The very low, low, med, high, and very high values represent the 10, 20, 50, 80, and 90 percentile values of the spore type when it is detected. For example, if the frequency of occurrence is 63% and the low value is 53, it would mean that the given spore type is detected 63% of the time and, when detected, 20% of the time it is present in levels above the detection limit and below 53 spores/m3. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

*The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

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Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldRANGE™: Extended Outdoor Comparison**Outdoor Location: 042713-04, Exterior, North Entrance**

Fungi Identified	Outdoor data	Typical Outdoor Data for: April in California (n‡=16784)†						Typical Outdoor Data for: The entire year in California (n‡=188141)†					
		very low	low	med	high	very high	freq %	very low	low	med	high	very high	freq %
Generally able to grow indoors*													
Alternaria	-	13	13	27	60	93	55	13	13	27	67	110	54
Bipolaris/Drechslera group	-	7	13	13	27	40	9	7	13	13	27	40	12
Chaetomium	-	8	13	13	27	40	18	8	13	13	27	47	19
Cladosporium	-	110	160	430	1,100	1,900	96	110	210	630	1,700	2,800	97
Curvularia	-	7	8	13	13	27	2	7	13	13	27	53	6
Nigrospora	-	7	10	13	13	27	4	7	13	13	27	53	8
Other brown	-	13	13	13	40	53	33	13	13	13	40	53	34
Penicillium/Aspergillus types	1,300	53	53	160	430	690	79	53	100	210	590	1,000	85
Stachybotrys	-	7	13	13	33	67	5	7	13	13	33	67	4
Torula	13	11	13	13	40	67	14	8	13	13	40	67	12
Seldom found growing indoors**													
Ascospores	210	27	53	110	370	690	75	25	53	110	360	690	71
Basidiospores	430	53	80	270	960	2,000	93	53	80	270	1,000	2,400	93
Rusts	-	13	13	25	53	93	35	13	13	13	53	80	27
Smuts, Periconia, Myxomycetes	13	13	13	40	110	200	67	13	13	40	110	200	68
§ TOTAL SPORES/m3	1,900												

†The 'Typical Outdoor Data' represents the typical outdoor spore levels for the location and time frame indicated. The last column represents the frequency of occurrence. The very low, low, med, high, and very high values represent the 10, 20, 50, 80, and 90 percentile values of the spore type when it is detected. For example, if the frequency of occurrence is 63% and the low value is 53, it would mean that the given spore type is detected 63% of the time and, when detected, 20% of the time it is present in levels above the detection limit and below 53 spores/m3. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

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**These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

‡n = number of samples used to calculate data.

Interpretation of the data contained in this report is left to the client or the persons who conducted the field work. This report is provided for informational and comparative purposes only and should not be relied upon for any other purpose. "Typical outdoor data" are based on the results of the analysis of samples delivered to and analyzed by EMLab P&K and assumptions regarding the origins of those samples. Sampling techniques, contaminants infecting samples, unrepresentative samples and other similar or dissimilar factors may affect these results. In addition, EMLab P&K may not have received and tested a representative number of samples for every region or time period. EMLab P&K hereby disclaims any liability for any and all direct, indirect, punitive, incidental, special or consequential damages arising out of the use or interpretation of the data contained in, or any actions taken or omitted in reliance upon, this report.

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSTAT™: Supplementary Statistical Spore Trap Report**Outdoor Summary:** 042613-02: Exterior, North Entrance

Species detected	Outdoor sample spores/m3				Typical outdoor ranges (North America)	Freq. %
	<100	1K	10K	>100K		
Ascospores				270	13 - 200 - 5,500	76
Basidiospores				530	13 - 430 - 23,000	92
Cladosporium				270	27 - 480 - 10,000	91
Penicillium/Aspergillus types				< 13	13 - 170 - 2,700	69
Smuts, Periconia, Myxomycetes				53	7 - 50 - 970	64
Total				1,100		

The "Typical outdoor ranges" and "Freq. %" columns show the typical low, medium, and high spore counts per cubic meter and the frequency of occurrence for the given spore type. The low, medium, and high values represent the 2.5, 50, and 97.5 percentile values when the spore type is detected. For example, if the low value is 53 and the frequency of occurrence is 63%, it would mean that we typically detect the given spore type on 63 percent of all outdoor samples and, when detected, 2.5% of the time it is present in levels below 53 spores/m3.

Indoor Samples**Location:** 042613-01: Decon Unit

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: 5%	dF: 2 Result: 0.5000 Critical value: 5.9915 Inside Similar: Yes	Result: 0.6667	dF: 4 Result: 0.4000 Critical value: N/A Outside Similar: N/A	Score: 104 Result: Low	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
Basidiospores		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></d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Location: 042713-02: Mens NW RR Entrance

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: 5%	dF: 2 Result: 0.5000 Critical value: 5.9915 Inside Similar: Yes	Result: 0.6667	dF: 4 Result: -0.3500 Critical value: N/A Outside Similar: N/A	Score: 103 Result: Low	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
Cladosporium		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></di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Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSTAT™: Supplementary Statistical Spore Trap Report**Location:** 042713-03: Inside Containment

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)
Result: 9%	dF: 2 Result: 0.5000 Critical value: 5.9915 Inside Similar: Yes	Result: 0.6667	dF: 4 Result: 0.1500 Critical value: N/A Outside Similar: N/A	Score: 110 Result: Low
Species Detected		Spores/m3		
		<100	1K	10K
Basidiospores				53
Smuts, Periconia, Myxomycetes				53
Total				110

* The Friedman chi-square statistic is a non-parametric test that examines variation in a set of data (in this case, all indoor spore counts). The null hypothesis (H0) being tested is that there is no meaningful difference in the data for all indoor locations. The alternative hypothesis (used if the test disproves the null hypothesis) is that there is a difference between the indoor locations. The null hypothesis is rejected when the result of the test is greater than the critical value. The critical value that is displayed is based on the degrees of freedom (dF) of the test and a significance level of 0.05.

** An agreement ratio is a simple method for assessing the similarity of two samples (in this case the indoor sample and the outdoor summary) based on the spore types present. A score of one indicates that the types detected in one location are the same as that in the other. A score of zero indicates that none of the types detected indoors are present outdoors. Typically, an agreement of 0.8 or higher is considered high.

*** The Spearman rank correlation is a non-parametric test that examines correlation between two sets of data (in this case the indoor location and the outdoor summary). The null hypothesis (H0) being tested is that the indoor and outdoor samples are unrelated. The alternative hypothesis (used if the test disproves the null hypothesis) is that the samples are similar. The null hypothesis is rejected when the result of the test is greater than the critical value. The critical value that is displayed is based on the degrees of freedom (dF) of the test and a significance level of 0.05.









**** MoldSCORE™ is a specialized method for examining air sampling data. It is a score between 100 and 300, with 100 indicating a greater likelihood that the airborne indoor spores originated from the outside, and 300 indicating a greater likelihood that they originated from an inside source. The Result displayed is based on the numeric score given and will be either Low, Medium, or High, indicating a low, medium, or high likelihood that the spores detected originated from an indoor source. EMLab P&K reserves the right to, and may at anytime, modify or change the MoldScore algorithm without notice.

Interpretation of the data contained in this report is left to the client or the persons who conducted the field work. This report is provided for informational and comparative purposes only and should not be relied upon for any other purpose. "Typical outdoor ranges" are based on the results of the analysis of samples delivered to and analyzed by EMLab P&K and assumptions regarding the origins of those samples. Sampling techniques, contaminants infecting samples, unrepresentative samples and other similar or dissimilar factors may affect these results. With the statistical analysis provided, as with all statistical comparisons and analyses, false-positive and false-negative results can and do occur. EMLab P&K hereby disclaims any liability for any and all direct, indirect, punitive, incidental, special or consequential damages arising out of the data contained in, or any actions taken or omitted in reliance upon, this report.

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSTAT™: Supplementary Statistical Spore Trap Report**Outdoor Summary: 042713-01: Exterior, South Entrance**

Species detected	Outdoor sample spores/m3				Typical outdoor ranges (North America)	Freq. %
	<100	1K	10K	>100K		
Alternaria				13	7 - 33 - 570	46
Ascospores				210	13 - 200 - 5,500	76
Basidiospores				270	13 - 430 - 23,000	92
Cladosporium				640	27 - 480 - 10,000	91
Other brown				13	7 - 13 - 120	24
Penicillium/Aspergillus types				< 13	13 - 170 - 2,700	69
Rusts				13	7 - 20 - 350	20
Smuts, Periconia, Myxomycetes				27	7 - 50 - 970	64
Total				1,200		

The "Typical outdoor ranges" and "Freq. %" columns show the typical low, medium, and high spore counts per cubic meter and the frequency of occurrence for the given spore type. The low, medium, and high values represent the 2.5, 50, and 97.5 percentile values when the spore type is detected. For example, if the low value is 53 and the frequency of occurrence is 63%, it would mean that we typically detect the given spore type on 63 percent of all outdoor samples and, when detected, 2.5% of the time it is present in levels below 53 spores/m3.

Indoor Samples**Location: 042613-01: Decon Unit**

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: 5%	dF: 2 Result: 0.5000 Critical value: 5.9915 Inside Similar: Yes	Result: 0.4444	dF: 7 Result: 0.5000 Critical value: 0.6786 Outside Similar: No	Score: 105 Result: Low	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
Basidiospores		<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	53
Smuts, Periconia, Myxomycetes		<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	13
Total		<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	67

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSTAT™: Supplementary Statistical Spore Trap Report**Location:** 042713-02: Mens NW RR Entrance

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)
Result: 5%	dF: 2 Result: 0.5000 Critical value: 5.9915 Inside Similar: Yes	Result: 0.4444	dF: 7 Result: 0.6429 Critical value: 0.6786 Outside Similar: No	Score: 102 Result: Low
Species Detected		Spores/m3		
		<100	1K	10K
				>100K
Cladosporium				53
Smuts, Periconia, Myxomycetes				13
Total				67

Location: 042713-03: Inside Containment

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)
Result: 8%	dF: 2 Result: 0.5000 Critical value: 5.9915 Inside Similar: Yes	Result: 0.4444	dF: 7 Result: 0.4732 Critical value: 0.6786 Outside Similar: No	Score: 110 Result: Low
Species Detected		Spores/m3		
		<100	1K	10K
				>100K
Basidiospores				53
Smuts, Periconia, Myxomycetes				53
Total				110

* The Friedman chi-square statistic is a non-parametric test that examines variation in a set of data (in this case, all indoor spore counts). The null hypothesis (H0) being tested is that there is no meaningful difference in the data for all indoor locations. The alternative hypothesis (used if the test disproves the null hypothesis) is that there is a difference between the indoor locations. The null hypothesis is rejected when the result of the test is greater than the critical value. The critical value that is displayed is based on the degrees of freedom (dF) of the test and a significance level of 0.05.

** An agreement ratio is a simple method for assessing the similarity of two samples (in this case the indoor sample and the outdoor summary) based on the spore types present. A score of one indicates that the types detected in one location are the same as that in the other. A score of zero indicates that none of the types detected indoors are present outdoors. Typically, an agreement of 0.8 or higher is considered high.

*** The Spearman rank correlation is a non-parametric test that examines correlation between two sets of data (in this case the indoor location and the outdoor summary). The null hypothesis (H0) being tested is that the indoor and outdoor samples are unrelated. The alternative hypothesis (used if the test disproves the null hypothesis) is that the samples are similar. The null hypothesis is rejected when the result of the test is greater than the critical value. The critical value that is displayed is based on the degrees of freedom (dF) of the test and a significance level of 0.05.

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSTAT™: Supplementary Statistical Spore Trap Report

**** MoldSCORE™ is a specialized method for examining air sampling data. It is a score between 100 and 300, with 100 indicating a greater likelihood that the airborne indoor spores originated from the outside, and 300 indicating a greater likelihood that they originated from an inside source. The Result displayed is based on the numeric score given and will be either Low, Medium, or High, indicating a low, medium, or high likelihood that the spores detected originated from an indoor source. EMLab P&K reserves the right to, and may at anytime, modify or change the MoldScore algorithm without notice.

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Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSTAT™: Supplementary Statistical Spore Trap Report**Outdoor Summary:** 042713-04: Exterior, North Entrance

Species detected	Outdoor sample spores/m3				Typical outdoor ranges (North America)	Freq. %
	<100	1K	10K	>100K		
Ascospores				210	13 - 200 - 5,500	76
Basidiospores				430	13 - 430 - 23,000	92
Cladosporium				< 13	27 - 480 - 10,000	91
Penicillium/Aspergillus types				1,300	13 - 170 - 2,700	69
Smuts, Periconia, Myxomycetes				13	7 - 50 - 970	64
Torula				13	7 - 13 - 170	9
Total				1,900		

The "Typical outdoor ranges" and "Freq. %" columns show the typical low, medium, and high spore counts per cubic meter and the frequency of occurrence for the given spore type. The low, medium, and high values represent the 2.5, 50, and 97.5 percentile values when the spore type is detected. For example, if the low value is 53 and the frequency of occurrence is 63%, it would mean that we typically detect the given spore type on 63 percent of all outdoor samples and, when detected, 2.5% of the time it is present in levels below 53 spores/m3.

Indoor Samples**Location:** 042613-01: Decon Unit

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: 3%	dF: 2 Result: 0.5000 Critical value: 5.9915 Inside Similar: Yes	Result: 0.5714	dF: 5 Result: 0.1250 Critical value: 0.8000 Outside Similar: No	Score: 104 Result: Low	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
Basidiospores		<div><div></div></div>			53
Smuts, Periconia, Myxomycetes		<div><div></div></div>			13
Total		<div><div></div></div>			67

Location: 042713-02: Mens NW RR Entrance

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)		
Result: 3%	dF: 2 Result: 0.5000 Critical value: 5.9915 Inside Similar: Yes	Result: 0.2857	dF: 6 Result: -0.4857 Critical value: 0.7714 Outside Similar: No	Score: 103 Result: Low		
Species Detected		Spores/m3				
		<100	1K	10K	>100K	
Cladosporium		<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	53
Smuts, Periconia, Myxomycetes		<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	13
Total		<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	67

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSTAT™: Supplementary Statistical Spore Trap Report**Location:** 042713-03: Inside Containment

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)
Result: 5%	dF: 2 Result: 0.5000 Critical value: 5.9915 Inside Similar: Yes	Result: 0.5714	dF: 5 Result: 0.0250 Critical value: 0.8000 Outside Similar: No	Score: 110 Result: Low
Species Detected		Spores/m3		
		<100	1K	10K
Basidiospores				53
Smuts, Periconia, Myxomycetes				53
Total				110

* The Friedman chi-square statistic is a non-parametric test that examines variation in a set of data (in this case, all indoor spore counts). The null hypothesis (H0) being tested is that there is no meaningful difference in the data for all indoor locations. The alternative hypothesis (used if the test disproves the null hypothesis) is that there is a difference between the indoor locations. The null hypothesis is rejected when the result of the test is greater than the critical value. The critical value that is displayed is based on the degrees of freedom (dF) of the test and a significance level of 0.05.

** An agreement ratio is a simple method for assessing the similarity of two samples (in this case the indoor sample and the outdoor summary) based on the spore types present. A score of one indicates that the types detected in one location are the same as that in the other. A score of zero indicates that none of the types detected indoors are present outdoors. Typically, an agreement of 0.8 or higher is considered high.

*** The Spearman rank correlation is a non-parametric test that examines correlation between two sets of data (in this case the indoor location and the outdoor summary). The null hypothesis (H0) being tested is that the indoor and outdoor samples are unrelated. The alternative hypothesis (used if the test disproves the null hypothesis) is that the samples are similar. The null hypothesis is rejected when the result of the test is greater than the critical value. The critical value that is displayed is based on the degrees of freedom (dF) of the test and a significance level of 0.05.

**** MoldSCORE™ is a specialized method for examining air sampling data. It is a score between 100 and 300, with 100 indicating a greater likelihood that the airborne indoor spores originated from the outside, and 300 indicating a greater likelihood that they originated from an inside source. The Result displayed is based on the numeric score given and will be either Low, Medium, or High, indicating a low, medium, or high likelihood that the spores detected originated from an indoor source. EMLab P&K reserves the right to, and may at anytime, modify or change the MoldScore algorithm without notice.

Interpretation of the data contained in this report is left to the client or the persons who conducted the field work. This report is provided for informational and comparative purposes only and should not be relied upon for any other purpose. "Typical outdoor ranges" are based on the results of the analysis of samples delivered to and analyzed by EMLab P&K and assumptions regarding the origins of those samples. Sampling techniques, contaminants infecting samples, unrepresentative samples and other similar or dissimilar factors may affect these results. With the statistical analysis provided, as with all statistical comparisons and analyses, false-positive and false-negative results can and do occur. EMLab P&K hereby disclaims any liability for any and all direct, indirect, punitive, incidental, special or consequential damages arising out of the data contained in, or any actions taken or omitted in reliance upon, this report.

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSCORE™: Spore Trap Report**Outdoor Sample:** 042613-02 Exterior, North Entrance

Fungi Identified	Outdoor sample spores/m3				Raw count	Spores/m3
	<100	1K	10K	>100K		
Generally able to grow indoors*						
Alternaria					ND	< 13
Bipolaris/Drechslera group					ND	< 13
Chaetomium					ND	< 13
Cladosporium					5	270
Curvularia					ND	< 13
Nigrospora					ND	< 13
Penicillium/Aspergillus types†					ND	< 13
Stachybotrys					ND	< 13
Torula					ND	< 13
Seldom found growing indoors**						
Ascospores					5	270
Basidiospores					10	530
Rusts					ND	< 13
Smuts, Periconia, Myxomycetes					4	53
Total						1,120

Location: 042613-01 Decon Unit

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3
	<100	1K	10K	>100K		
Generally able to grow indoors*						
Alternaria					ND	< 13
Bipolaris/Drechslera group					ND	< 13
Chaetomium					ND	< 13
Cladosporium					ND	< 13
Curvularia					ND	< 13
Nigrospora					ND	< 13
Penicillium/Aspergillus types†					ND	< 13
Stachybotrys					ND	< 13
Torula					ND	< 13
Seldom found growing indoors**						
Ascospores					ND	< 13
Basidiospores					1	53
Rusts					ND	< 13
Smuts, Periconia, Myxomycetes					1	13
Total						67

MoldSCORE‡			
100	200	300	Score
			100
			100
			100
			100
			100
			100
			100
			100
			100
			104
			100
			102
Final MoldSCORE			104

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSCORE™: Spore Trap Report**Location:** 042713-02 Mens NW RR Entrance

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3	MoldSCORE [‡]			
	<100	1K	10K	>100K			100	200	300	Score
Generally able to grow indoors*										
Alternaria					ND	< 13				100
Bipolaris/Drechslera group					ND	< 13				100
Chaetomium					ND	< 13				100
Cladosporium					1	53				103
Curvularia					ND	< 13				100
Nigrospora					ND	< 13				100
Penicillium/Aspergillus types [†]					ND	< 13				100
Stachybotrys					ND	< 13				100
Torula					ND	< 13				100
Seldom found growing indoors**										
Ascospores					ND	< 13				100
Basidiospores					ND	< 13				100
Rusts					ND	< 13				100
Smuts, Periconia, Myxomycetes					1	13				102
Total						67	Final MoldSCORE			103

Location: 042713-03 Inside Containment

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3	MoldSCORE [‡]			
	<100	1K	10K	>100K			100	200	300	Score
Generally able to grow indoors*										
Alternaria					ND	< 13				100
Bipolaris/Drechslera group					ND	< 13				100
Chaetomium					ND	< 13				100
Cladosporium					ND	< 13				100
Curvularia					ND	< 13				100
Nigrospora					ND	< 13				100
Penicillium/Aspergillus types [†]					ND	< 13				100
Stachybotrys					ND	< 13				100
Torula					ND	< 13				100
Seldom found growing indoors**										
Ascospores					ND	< 13				100
Basidiospores					1	53				103
Rusts					ND	< 13				100
Smuts, Periconia, Myxomycetes					4	53				110
Total						107	Final MoldSCORE			110

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSCORE™: Spore Trap Report

*The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

**These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

†The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods.

‡Rated on a scale from 100 to 300. A rating less than 150 is low and indicates a low probability of spores originating inside. A rating greater than 250 is high and indicates a high probability that the spores originated from inside, presumably from indoor mold growth. A rating between 150 and 250 indicates a moderate likelihood of indoor fungal growth. MoldSCORE is NOT intended for wall cavity samples. It is intended for ambient air samples in residences. Using the analysis on other samples (like wall cavity samples) will lead to misleading results.

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSCORE™: Spore Trap Report
Outdoor Sample: 042713-01 Exterior, South Entrance

Fungi Identified	Outdoor sample spores/m3				Raw count	Spores/m3
	<100	1K	10K	>100K		
Generally able to grow indoors*						
Alternaria					1	13
Bipolaris/Drechslera group					ND	< 13
Chaetomium					ND	< 13
Cladosporium					12	640
Curvularia					ND	< 13
Nigrospora					ND	< 13
Other brown					1	13
Penicillium/Aspergillus types†					ND	< 13
Stachybotrys					ND	< 13
Torula					ND	< 13
Seldom found growing indoors**						
Ascospores					4	210
Basidiospores					5	270
Rusts					1	13
Smuts, Periconia, Myxomycetes					2	27
Total						1,187

Location: 042613-01 Decon Unit

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3
	<100	1K	10K	>100K		
Generally able to grow indoors*						
Alternaria					ND	< 13
Bipolaris/Drechslera group					ND	< 13
Chaetomium					ND	< 13
Cladosporium					ND	< 13
Curvularia					ND	< 13
Nigrospora					ND	< 13
Penicillium/Aspergillus types†					ND	< 13
Stachybotrys					ND	< 13
Torula					ND	< 13
Seldom found growing indoors**						
Ascospores					ND	< 13
Basidiospores					1	53
Rusts					ND	< 13
Smuts, Periconia, Myxomycetes					1	13
Total						67

MoldSCORE‡				Score
100	200	300		
				100
				100
				100
				100
				100
				100
				100
				100
				100
				105
				100
				102
Final MoldSCORE				105

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSCORE™: Spore Trap Report**Location:** 042713-02 Mens NW RR Entrance

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3	MoldSCORE [‡]			
	<100	1K	10K	>100K			100	200	300	Score
Generally able to grow indoors*										
Alternaria					ND	< 13				100
Bipolaris/Drechslera group					ND	< 13				100
Chaetomium					ND	< 13				100
Cladosporium					1	53				102
Curvularia					ND	< 13				100
Nigrospora					ND	< 13				100
Penicillium/Aspergillus types [†]					ND	< 13				100
Stachybotrys					ND	< 13				100
Torula					ND	< 13				100
Seldom found growing indoors**										
Ascospores					ND	< 13				100
Basidiospores					ND	< 13				100
Rusts					ND	< 13				100
Smuts, Periconia, Myxomycetes					1	13				102
Total						67	Final MoldSCORE			102

Location: 042713-03 Inside Containment

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3	MoldSCORE [‡]			
	<100	1K	10K	>100K			100	200	300	Score
Generally able to grow indoors*										
Alternaria					ND	< 13				100
Bipolaris/Drechslera group					ND	< 13				100
Chaetomium					ND	< 13				100
Cladosporium					ND	< 13				100
Curvularia					ND	< 13				100
Nigrospora					ND	< 13				100
Penicillium/Aspergillus types [†]					ND	< 13				100
Stachybotrys					ND	< 13				100
Torula					ND	< 13				100
Seldom found growing indoors**										
Ascospores					ND	< 13				100
Basidiospores					1	53				104
Rusts					ND	< 13				100
Smuts, Periconia, Myxomycetes					4	53				110
Total						107	Final MoldSCORE			110

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSCORE™: Spore Trap Report

*The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

**These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

†The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods.

‡Rated on a scale from 100 to 300. A rating less than 150 is low and indicates a low probability of spores originating inside. A rating greater than 250 is high and indicates a high probability that the spores originated from inside, presumably from indoor mold growth. A rating between 150 and 250 indicates a moderate likelihood of indoor fungal growth. MoldSCORE is NOT intended for wall cavity samples. It is intended for ambient air samples in residences. Using the analysis on other samples (like wall cavity samples) will lead to misleading results.

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSCORE™: Spore Trap Report**Outdoor Sample:** 042713-04 Exterior, North Entrance

Fungi Identified	Outdoor sample spores/m3				Raw count	Spores/m3
	<100	1K	10K	>100K		
Generally able to grow indoors*						
Alternaria					ND	< 13
Bipolaris/Drechslera group					ND	< 13
Chaetomium					ND	< 13
Cladosporium					ND	< 13
Curvularia					ND	< 13
Nigrospora					ND	< 13
Penicillium/Aspergillus types†					24	1,300
Stachybotrys					ND	< 13
Torula					1	13
Seldom found growing indoors**						
Ascospores					4	210
Basidiospores					8	430
Rusts					ND	< 13
Smuts, Periconia, Myxomycetes					1	13
Total						1,947

Location: 042613-01 Decon Unit

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3	MoldSCORE‡			
	<100	1K	10K	>100K			100	200	300	Score
Generally able to grow indoors*										
Alternaria					ND	< 13				100
Bipolaris/Drechslera group					ND	< 13				100
Chaetomium					ND	< 13				100
Cladosporium					ND	< 13				100
Curvularia					ND	< 13				100
Nigrospora					ND	< 13				100
Penicillium/Aspergillus types†					ND	< 13				100
Stachybotrys					ND	< 13				100
Torula					ND	< 13				100
Seldom found growing indoors**										
Ascospores					ND	< 13				100
Basidiospores					1	53				104
Rusts					ND	< 13				100
Smuts, Periconia, Myxomycetes					1	13				103
Total						67	Final MoldSCORE			104

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013

MoldSCORE™: Spore Trap Report**Location:** 042713-02 Mens NW RR Entrance

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3	MoldSCORE†			
	<100	1K	10K	>100K			100	200	300	Score
Generally able to grow indoors*										
Alternaria					ND	< 13				100
Bipolaris/Drechslera group					ND	< 13				100
Chaetomium					ND	< 13				100
Cladosporium					1	53				103
Curvularia					ND	< 13				100
Nigrospora					ND	< 13				100
Penicillium/Aspergillus types†					ND	< 13				100
Stachybotrys					ND	< 13				100
Torula					ND	< 13				100
Seldom found growing indoors**										
Ascospores					ND	< 13				100
Basidiospores					ND	< 13				100
Rusts					ND	< 13				100
Smuts, Periconia, Myxomycetes					1	13				103
Total						67	Final MoldSCORE			103

Location: 042713-03 Inside Containment

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3	MoldSCORE†			
	<100	1K	10K	>100K			100	200	300	Score
Generally able to grow indoors*										
Alternaria					ND	< 13				100
Bipolaris/Drechslera group					ND	< 13				100
Chaetomium					ND	< 13				100
Cladosporium					ND	< 13				100
Curvularia					ND	< 13				100
Nigrospora					ND	< 13				100
Penicillium/Aspergillus types†					ND	< 13				100
Stachybotrys					ND	< 13				100
Torula					ND	< 13				100
Seldom found growing indoors**										
Ascospores					ND	< 13				100
Basidiospores					1	53				103
Rusts					ND	< 13				100
Smuts, Periconia, Myxomycetes					4	53				110
Total						107	Final MoldSCORE			110

Client: GHD Inc.
C/O: Ms. Erica Sattar
Re: 8410430; Corroded Drain Line Invest.

Date of Submittal: 04-27-2013
Date of Receipt: 04-27-2013
Date of Report: 04-27-2013


MoldSCORE™: Spore Trap Report

*The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

**These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

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‡Rated on a scale from 100 to 300. A rating less than 150 is low and indicates a low probability of spores originating inside. A rating greater than 250 is high and indicates a high probability that the spores originated from inside, presumably from indoor mold growth. A rating between 150 and 250 indicates a moderate likelihood of indoor fungal growth. MoldSCORE is NOT intended for wall cavity samples. It is intended for ambient air samples in residences. Using the analysis on other samples (like wall cavity samples) will lead to misleading results.



EM Lab P&K
A TestAmerica Company

Weather		Fog	Rain	Snow	Wind	Clear
Level	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
	Light	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Moderate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Heavy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1. *Journal of the American Medical Association*, 1997; 278: 1025-1030.

001055837

CONTACT INFORMATION						
Company:	GHD	Address: 3831 N. Freeway, Soc. 95834				
Contact:	Erica Sattar	Special Instructions:				
Phone:	916-799-8333					
PROJECT INFORMATION				TURN AROUND TIME CODES (TAT)		
Project ID:	8410430		STD - Standard (DEFAULT)		Rushes received after 2 pm or on weekends will be considered received the next business day. Please alert us in advance of weekend analysis needs.	
Project Description:	Corroded Drain Line Invest.		ND - Next Business Day			
Project Zip Code:	95815	Sampling Date & Time:	0426 & 0427			
PO Number:		SD - Same Business Day Rush				
			WH - Weekend / Holiday			
Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume / Area (if applicable)	Notes (Time of day, Temp, RH, etc.)	
042613-01	Deton Unit	ST	WH	75ml	2415; 74, 60	
042613-02	Exterior, north entrance	↓	↓	↓	0120; 63, 52	
042713-01	VOID —	—	—	—	—	
042713-01	Exterior South entrance	ST	WH	75ml	0755; 56, 60	
042713-02	Mens NW rr entrance	↓		↓	0810; 72, 39	
042713-03	Inside Containment				0820; 73, 36	
042713-04	Exterior, North entrance	↓		↓	0655; 63, 53	
					(Signature)	

Non-Culturable		Culturable		Other Requests	
Spore Trap	Tape Swab Bulk	BioCassette™, Andersen, SAS, Swab, Wafer, Bulk, Dust, Soil, Contact Plates			
Fungi - Spore Trap Analysis					
Spore Trap Analysis - Other particles					
Direct Microscopic Exam (Qualitative)					
Quantitative Spore Count Direct Exam					
1-Media Surface Fungi (Genus ID + Asp. spp.)					
2-Media Surface Fungi (Genus ID + Asp. spp.)					
3-Media Surface Fungi (Genus ID + Asp. spp.)					
Culturable Air Fungi (Genus ID + Asp. spp.)					
Gram Stain & Counts (Culturable Air & Surface Bacteria)					
Legionella culture					
Total Coliform, E. coli (Presence/Absence)					
Membrane Filtration (specify organism):					
MPN Bacteria (specify organism):					
Quantitray - Sewage Screen					
Asbestos Analysis - PCM Abbome Fiber Count (NID# 17400)					
Asbestos Analysis - PCM (EPA method 600/R-93-119)					
PCR (specify test):					
Specify Service					

SAMPLE TYPE CODES				RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
BC - BioCassette™	ST - Spore Trap; Zefon, Allergenvac, Burkard ...	T - Tape	D - Dust	Gina S. Lattar	04.27.13/0945	Melissa Murray	4/27/13 945
A1S - Anderson		SW - Swab	SO - Soil				
SAS - Surface Air Sampler	P - Potable Water	B - Bulk					
CP - Contact Plate	NP - Non-Potable Water	O - Other:					

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